

## Section 11

# Shortage Contingency Analysis

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The Act requires that urban water agencies conduct a water shortage contingency analysis as part of their 2010 plan. This section includes the Water Authority's analysis and plans to address supply shortages due to a catastrophe, drought, or other situations. An estimate of the minimum supplies available during each of the next three years, required under the Act, is also contained in this section.

## 11.1 Catastrophic Water Shortage

A catastrophic water shortage occurs when a disaster, such as an earthquake, results in insufficient available water to meet the region's needs or eliminates access to imported water supplies. The following section describes the Water Authority's Integrated Contingency Plan (ICP) and ESP, both of which were developed to protect public health and safety and to prevent or limit economic damage that could occur from a severe shortage of water supplies. The Water Authority's ICP and ESP provide actions to be taken in the event of an earthquake or power outage. The ESP provides actions that the Water Authority will take to operate ESP facilities to address up to a six month supply interruption, which could result from earthquakes (see Section 11.1.2 below for ESP actions). As discussed in the ICP, the Water Authority has prepared for potential power outages by operating and testing standby and mobile generators that can provide power for essential or critical activities for at least one hour. Power outages may occur as a result of natural events such as earthquake and flooding, or man-made events such as a terrorist act.

### 11.1.1 Integrated Contingency Plan

The Water Authority's ICP provides staff with the information necessary to respond to an emergency that causes severe damage to the Water Authority's water distribution system, or impedes the Water Authority's ability to provide reliable water service to its member agencies. The ICP describes the situations and incidents that will trigger the activation of the Water Authority's ICP and Emergency Operations Center. It also provides direction and strategies for responding to a crisis. The Water Authority's ICP includes:

- Authorities, policies, and procedures associated with emergency response activities
- Emergency Operations Center activities, including activation and deactivation guidelines
- Multi-agency and multi-jurisdictional coordination, particularly between the Water Authority, its member agencies, and Metropolitan in accordance with Standardized Emergency Management System (SEMS) and National Incident Management System (NIMS) guidelines
- Incident Command System management and organization and emergency staffing required to assist in mitigating any significant emergency or disaster
- Mutual Aid Agreements and covenants that outline the terms and conditions under which mutual aid assistance will be provided
- Hazard specific action plans and Incident Command System position checklists

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In addition, the Water Authority's ICP uses a step-by-step approach to emergency response planning by providing tools such as resource and information lists, personnel rosters, pertinent policies and procedures, and reference materials. The Water Authority provides input to the Unified San Diego County Emergency Services Organization's "Operational Area Emergency Plan," which in turn, supports the Water Authority's plan.

### 11.1.2 Water Authority's Emergency Storage Project

In June 1998, the Water Authority's Board authorized implementation of the ESP to reduce the risk of potential catastrophic damage that could result from a prolonged interruption of imported water due to earthquake, drought, or other disasters. The ESP is a system of reservoirs, pipelines, and other facilities that will work together to store and move water around the county in the event of a natural disaster. The ESP will provide, when complete, a rolling two month average of consumptive demand to offset complete loss of imported water supplies from Metropolitan during an extended shutdown or outage of the aqueduct system. The project will provide up to six months of emergency water storage in the case of a partial outage. .

The ESP facilities are located throughout San Diego County and are being constructed in phases. Construction of the first facilities began in 2000. The initial ESP phase included construction of the 318-foot-high Olivenhain Dam and accompanying Olivenhain Reservoir, which together added 24,300 AF of emergency storage for the region. Raising the height of the San Vicente Dam is the last major component of the ESP, and should be completed by 2012. The raised dam will add an additional 117 feet, making this the tallest dam raise in the United States, and will allow for an additional 52,000 AF of emergency storage, as well as 100,000 AF of carryover storage (see **Section 11.2.3.1** for discussion on carryover storage). When completed, the ESP will provide 90,100 AF of stored water for emergency purposes to meet the county's needs through at least 2030. The Water Authority Board of Directors may also authorize that supplies from the ESP be used in a prolonged drought or other water shortage situation where imported and local supplies do not meet 75 percent of the Water Authority's member agencies Municipal and Industrial (M&I) demands.

In sizing the ESP, the Water Authority assumed a 75 percent level of service to all Water Authority member agencies during an outage and full implementation of the water conservation best management practices. The following steps from the August 2002 Emergency Water Delivery Plans show the methodology for calculating the allocation of ESP supplies to member agencies in a prolonged outage situation without imported supplies:

1. Estimate the duration of the emergency (i.e. time needed to repair damaged pipelines).
2. Determine each member agency's net demand during the emergency period by adding M&I water demands and agricultural water demands and then subtracting recycled water supplies.
3. Determine each member agency's useable local supplies during the emergency period (local supplies include surface water and groundwater).
4. Determine each member agency's level of service based on usable local supplies and net demand.
5. Adjust the allocation of ESP supplies based on a member agency's participation in an interruptible agricultural program (e.g. Metropolitan Interim Agricultural Water Program or

Water Authority Special Agricultural Water Rate). Interruptible agricultural program customers will be required to take a reduction in deliveries during a water shortage due to an emergency at double the system-wide reduction up to a maximum of 90 percent. Water not delivered to interruptible agricultural program customers will be redistributed to member agencies based on the “system-wide” level of service targets.

6. Determine the amount of local supplies that can be transferred between member agencies, with transfers occurring only after a member agency has a level of service greater than 75 percent based on their usable local supplies.
7. Allocate delivery of useable ESP storage supplies along with available Water Authority and Metropolitan supplies to member agencies with the goal of equalizing the level of service among the member agencies.

## **11.2 Water Shortage and Drought Response Planning**

This section discusses the actions the Water Authority, in coordination with its member agencies, could take to effectively plan for potential shortages. The Water Authority’s Water Shortage and Drought Response Plan (WSDRP), which serves as the region’s guiding shortage management document, is discussed below. The section also highlights the actions taken during the 2007-2011 shortage period to manage supply shortfalls and contains information on the Water Authority’s dry-year supplies.

### **11.2.1 Water Shortage and Drought Response Plan**

Following the major drought in California of 1987 - 1992, which led to severe water supply shortages throughout the state, the Water Authority and its member agencies aggressively developed plans to minimize the impact of potential shortages. In 2006, the Water Authority Board of Directors adopted the WSDRP, to serve as a comprehensive plan in the event that the region faced supply shortages due to drought or other water shortage conditions.

The WSDRP was developed by the Water Authority in coordination with its member agencies to provide a balanced, flexible, systematic approach to identifying regional actions necessary to reduce the impacts from shortages. It includes all aspects of drought planning, from steps to avoid rationing, to drought response stages, allocation methodology, pricing, tracking actual reductions in water use, and a communication strategy. Multiple actions are identified to manage shortage situations, including both supply augmentation measures and demand reductions up to 50 percent in water supply. Conservation savings is an essential component of meeting the need for water in a time when available supplies are limited.

The WSDRP is organized into three stages: voluntary supply management, supply enhancement, and mandatory cutbacks including a supply allocation methodology. These stages are summarized in the Drought Response Matrix in Table 11-1. A copy of the WSDRP is included in Appendix G.

#### **11.2.1.1 Drought Response Matrix**

The WSDRP includes a drought response matrix that serves as guidance to the Water Authority and member agencies in selecting potential regional actions to lessen the severity of shortage conditions.

As shown in Table 11.1, the matrix identifies the three drought stages and potential actions available to the Water Authority at each stage.

**Table 11-1. Drought Response Matrix – Firm Demands**

Potential SDCWA Drought Actions	Stages		
	Voluntary	Supply Enhancement	Mandatory Cutbacks
Ongoing BMP implementation	X	X	X
Communication strategy	X	X	X
Monitoring supply conditions and storage levels	X	X	X
Call for voluntary conservation	X	X	X
Draw from SDCWA carryover storage	X	X	X
Secure transfer option contracts	X	X	X
Buy phase 1 spot transfers (cost at or below Tier 2 rate)		X	X
Call transfer options		X	X
Buy phase 2 spot transfers (cost at or above Tier 2 rate)		X	X
Implement allocation methodology			X
Utilize ESP Supplies			X

SDCWA = San Diego County Water Authority

### 11.2.1.2 M&I Supply Allocation Methodology

In the event of mandatory supply cutbacks from Metropolitan, the WSDRP includes an M&I allocation methodology to determine how the Water Authority's available supplies will be equitably allocated to its member agencies. The allocation methodology applies to those customers paying the M&I rate, including residential, commercial, and industrial customers. During an allocation, the actual reduction in member agency deliveries is determined through monthly meter reads, which are compared to the allocation targets for each member agency. This tracking information is then provided in monthly progress reports to the board of directors.

The Water Authority administers the M&I allocation methodology following the procedures and policies contained in the Water Authority's Resolution Establishing Procedures and Policies for Administration of the Drought Management Plan Water Supply Allocation Methodology. A copy of the resolution is included in Appendix G. The resolution includes a requirement for the Water Authority staff to report monthly to the Board of Directors and member agency managers on agency deliveries are tracking compared to their allocation target.

## 11.2.2 Summary of 2007 – 2011 Shortage Period Management Actions

The last major drought in California began in 2007, which also marked the beginning of increased restrictions on State Water Project pumping from the Bay-Delta environmental considerations. The

Colorado River was in the midst of a prolonged multi-year drought that began in 2000. In April 2007, Metropolitan notified its member agencies that it expected challenges in meeting demands due to insufficient imported water supplies from the State Water Project and the Colorado River. In order to meet demands, Metropolitan announced that it would implement shortage-related actions consistent with its WSDM Plan, including a need to draw upon its storage to meet expected 2007 demands. Metropolitan adopted its Water Surplus and Drought Management (WSDM) Plan in 1999 as guidance for managing regional water supplies during both surplus and shortage situations. Metropolitan's announcement that it would need to draw upon its storage to meet demands triggered implementation of the Water Authority's WSDRP.

The Water Authority began to implement a series of response measures identified in its WSDRP to reduce potential shortage impacts, starting with a call for voluntary conservation, and securing dry-year water transfers and storage programs for the region. As dry conditions persisted into 2009, the Water Authority and its member agencies intensified their drought response activities. In April 2009, Metropolitan's Board of Directors voted to allocate urban water deliveries in fiscal year 2010 for the first time in decades to its member agencies. In turn, the Water Authority allocated water deliveries to its member agencies using the supply allocation methodology contained in the WSDRP. The Water Authority's long-term strategy to improve water supply reliability by diversifying the region's water supply portfolio helped offset some of the required cutbacks from Metropolitan. In order to ensure deliveries remained under the allocation target, many agencies went from voluntary conservation to mandatory water use restrictions. Residences and businesses responded to the call for conservation, and urban water use fell throughout San Diego County. Although hydrologic conditions began to improve in 2010, storage reserves remained low, and allocations continued into fiscal year 2011, to help restore storage reserves and prepare for a potential dry water year. Supply conditions continued to improve throughout the winter and into the spring 2011. Storage water began to rise to levels seen before the start of the 2007 drought. On April 13, 2011, Metropolitan terminated water allocations to its member agencies. Subsequently, the Water Authority discontinued allocations to its member agencies and deactivated the WSDRP on April 28, 2011.

With the drought over and deactivation of the WSDRP, the Water Authority, in coordination with its member agencies, is conducting an evaluation of the WSDRP, including the allocation methodology, based on lessons learned through implementation during the 2007-2011 shortage period. The Water Authority will continue to work closely with the member agencies and Metropolitan to monitor supply conditions and storage levels, and to implement the WSDRP as needed to effectively manage and minimize the effect of shortages.

### 11.2.2.1 Timeline of Important Drought and Shortage Related Events

To assist in the potential activation of the WSDRP in the future, Table 11.2 contains a general timeline of events that occurred and actions taken during the 2007-2011 period:

**Table 11-2. Timeline of Important Drought and Shortage Related Events**

Date	Event or Action
2007	
April	Metropolitan staff announces to the Board that it will need to draw from storage supplies to meet expected 2007 demands, consistent with its WSDM Plan

<b>Date</b>	<b>Event or Action</b>
May	<ul style="list-style-type: none"> <li>Water Authority activates WSDRP Stage 1, Voluntary Supply Management</li> <li>US District Judge Oliver Wanger invalidates the US Fish and Wildlife 2005 Delta Smelt biological opinion and orders a new biological opinion be developed</li> <li>DWR final calendar year 2007 water allocation to SWP contractors is 60 percent</li> </ul>
July	Water Authority begins delivery of imported supplies to carryover storage accounts in local member agency reservoirs
October	Metropolitan announces plans to reduce agricultural deliveries to customers participating in their Interim Agricultural Water Program by 30 percent, effective January 1, 2008, consistent with its WSDM Plan
November	DWR initial calendar year 2008 water allocation to SWP contractors is 25 percent
December	<ul style="list-style-type: none"> <li>Judge Wanger issues an interim order to direct actions at the export facilities to protect Delta Smelt until a new biological opinion is completed.</li> <li>Water Authority activates WSDRP Stage 2, Supply Enhancement</li> </ul>
<b>2008</b>	
February	DWR final water calendar year 2008 allocation to SWP contractors is 60 percent
March	Water Authority Board of Directors approves Model Drought Response Ordinance
April	<ul style="list-style-type: none"> <li>Water Authority declares Level 1 Drought Alert under its Model Drought Response Ordinance</li> <li>Judge Wanger invalidates National Marine Fisheries Service biological opinion related to the operations of the CVP and SWP</li> </ul>
June	Governor Arnold Schwarzenegger proclaims statewide emergency due to drought
October	<ul style="list-style-type: none"> <li>Metropolitan Board approves a plan to phase out the IAWP by 2013</li> <li>DWR initial calendar year 2009 water allocation to SWP contractors is 25 percent</li> </ul>
December	<ul style="list-style-type: none"> <li>U.S. Fish and Wildlife Service releases revised biological opinion on Delta smelt</li> <li>On February 27, 2009, Governor Schwarzenegger proclaims a state of emergency due to drought</li> </ul>
<b>2009</b>	
April	<ul style="list-style-type: none"> <li>Metropolitan announces allocation of M&amp;I deliveries to its member agencies, including the San Diego region for fiscal year 2010 at an estimated 13 percent cutback level</li> <li>Water Authority implements WSDRP Stage 3 "Mandatory Cutbacks" and approves allocating M&amp;I supplies to its member agencies in fiscal year 2010 at an estimated 8 percent cutback level</li> <li>Water Authority declares Level 2 Drought Alert under its Model Drought Response Ordinance</li> <li>Water Authority authorized utilization of approximately 16,000 AF acre-feet of dry-year transfers acquired in 2009</li> </ul>
May	DWR final calendar year 2009 water allocation to SWP contractors is 25 percent
June	National Marine Fisheries Service releases final biological opinion and concludes that CVP and SWP pumping operations should be changed to protect the winter and spring run Chinook salmon, Central Valley steelhead, North American green sturgeon, and southern resident killer whales
November	DWR initial calendar year 2010 water allocation to SWP contractors is 5 percent
<b>2010</b>	
April	Metropolitan continues allocation of M&I deliveries to its member agencies for fiscal year 2011. In response, the Water Authority continues to allocate M&I deliveries to its member agencies
June	DWR final calendar year 2010 water allocation to SWP contractors is 50 percent
November	DWR initial calendar year 2011 water allocation to SWP contractors is 25 percent

<b>Date</b>	<b>Event or Action</b>
<b>2011</b>	
January	DWR increases its calendar year 2011 water allocation to SWP contractors to 60 percent
March	Governor Jerry Brown proclaims an end to the statewide drought
April	<ul style="list-style-type: none"> <li>• Metropolitan discontinues M&amp;I allocations</li> <li>• DWR increases its calendar year 2011 water allocations to SWP contractors to 80 percent</li> <li>• Water Authority deactivates WSDRP and discontinues allocations</li> <li>• Water Authority declares an end to the Drought Response Levels contained in the model Drought Response Conservation Program Ordinance</li> </ul>

### 11.2.3 Water Authority Dry-Year Supplies and Carryover Storage

The Water Authority's dry-year supplies and carryover storage are an important component of managing potential shortages within the region and for increasing supply reliability for the region. The dry-year supplies assist in minimizing or reducing potential supply shortages from Metropolitan. Over the last five years the Water Authority has developed a carryover storage program to more effectively manage supplies. This includes in-region surface storage currently in member agency reservoirs and increasing capacity through the raising of San Vicente Dam, which should be completed by 2012. The Water Authority also has an out-of-region groundwater banking program in the California central valley. Through these efforts, the Water Authority can store water available during wet periods for use during times of shortage. The Water Authority also implemented a dry-year transfer program during the last shortage period and successfully acquired and utilized dry-year transfer supplies in 2009. The Water Authority's carryover storage and dry-year transfer programs are discussed below.

#### 11.2.3.1 Water Authority Carryover Storage Program

The carryover storage program provides water for the region in the case of a supply shortage, such as during a drought. The Water Authority has identified three main needs for carryover storage:

1. Enhance reliability of the water supply: During dry weather periods, increased regional demand for water may exceed available supplies, resulting in potential water shortages. Carryover storage provides a reliable and readily available source of water during periods of shortage, such as during dry years.
2. Increase system efficiency: Carryover storage provides operational flexibility to serve above normal demands, such as those occurring during peak summer months or extended droughts, from locally stored water rather than by the over-sizing of the Water Authority's imported water transmission facilities.
3. Better management of water supplies: Carryover storage allows the Water Authority to accept additional deliveries from its existing State Water Project- and Colorado River-derived sources during periods of greater availability, such as during wet years, to increase water availability locally during periods of shortage, such as during dry years.

## **San Vicente Dam Raise Carryover Storage Project**

The Water Authority's Water Facilities Master Plan (December 2002) identified a need for approximately 100,000 AF of carryover storage to assist in maintaining a secure and reliable supply for the region.

The San Vicente Dam Raise CSP will meet this need by providing approximately 100,000 acre-feet of local storage and facilitate the reliable and efficient delivery of water to residents of the Water Authority service area. It will be located in the San Vicente Reservoir above the reservoir expansion for the ESP (see previous **Section 11.1.2**), and will increase water storage reliability for the region. Construction is scheduled to be completed in 2012, followed by filling of the reservoir in three to five years. Prior to completion of the project, the Water Authority is storing carryover water in member agency reservoirs under agreement.

## **Water Authority's Out-Of-Region Groundwater Program**

As part of the Quantification Settlement Agreement, the Water Authority became the recipient of groundwater conjunctive use funds appropriated through Senate Bill 1765 (1998), which originally were designated to Metropolitan. Approximately \$30.5 million was made available to the Water Authority for use in its groundwater program. A demand and supply analysis utilizing data from the Water Authority's 2005 Urban Water Management Plan identified a maximum potential need for approximately up to 95,000 acre-feet of additional carryover storage beyond the 100,000 acre-feet of carryover storage at San Vicente Reservoir. This evaluation looked at a three-year dry cycle scenario during which demands are high and imported supplies are constrained by preferential rights. Based on that scenario, the Water Authority distributed a Request for Proposal (RFP) in November 2005 to partner with agencies overlying a groundwater basin for a conjunctive use project. The project would allow water to be delivered and stored during above normal hydrology and extracted from the basin and delivered to the Water Authority either by wheeling through various facilities, exchanges, or other alternatives.

In 2008, the Water Authority acquired a total of 70,000 acre-feet of permanent storage allocation in the Semitropic-Rosamond Water Bank Authority and Semitropic Water Bank (40,000 acre-feet and 30,000 acre-feet respectively) located in Kern County. Due to its location near the California Aqueduct, the Kern River and the Friant-Kern Canal, the location was ideally suited for groundwater banking. The Water Authority's assigned rights also included a total Program Delivery Capacity of 12,715 acre-feet per year and 10,865 acre-feet per year of Program Pumpback Capacity.

Due to continuing statewide dry conditions, in 2008, the Water Authority purchased approximately 23,077 acre-feet of water from Butte Water District and Sutter Extension Water District (transfer water). Also in 2008, an agreement was executed between Metropolitan and the Water Authority allowing Metropolitan to take ownership of the Water Authority's Transfer Water at Banks Pumping Plant and Metropolitan would pay all costs to convey the Transfer Water to its service area for sale to its member agencies. In exchange, Metropolitan would assign to the Water Authority an amount of water stored in Metropolitan's existing Semitropic account equal to the Transfer Water, less a 10 percent one-time loss. In December 2008, 17,908 acre-feet was delivered into Metropolitan's service area. The Department of Water Resources confirmed the delivered amount, and Metropolitan assigned the like amount of water (less a 10 percent evaporative and aquifer loss) to the Water Authority's Semitropic Water Bank program. As a result, 16,117 acre-feet of water was stored and qualified as reimbursement for initial fill from the state funds provided under SB 1765. The 16,117



acre-feet of water continues to be stored in the Water Authority's 70,000 acre-feet out-of-region banking program.

### **Utilization of Carryover Storage Supplies**

In accordance with the Water Authority's WSDRP, potential utilization of carryover storage supplies could occur in Stage 2, Supply Enhancement, or Stage 3, Mandatory Cutbacks. The amount of water taken from carryover storage reserves, to manage potential shortages, is influenced by a number of factors and should generally be handled on a case-by-case basis. Many of the factors influencing the storage take will vary depending upon conditions present. These factors include, but are not limited to:

- Current water demand trends;
- Core water supply availability from imported and local sources;
- Existing and projected hydrologic conditions;
- Storage supply available for withdrawal;
- Take capacity from the groundwater banking program; and
- Need to avoid depletion of storage reserves.

For planning purposes in the 2010 Plan, general guidelines are established that approximately one third of the carryover supplies available in storage will be utilized in one year. Utilizing only a portion of available storage supplies avoids depletion of storage reserves, thereby making water available for potential ongoing or future shortages. It should be emphasized that the carryover storage takes shown in the dry water year assessments contained in Section 9.3 are used for planning purposes only and should not dictate future carryover storage takes. The Water Authority's 2012 Master Plan Update will contain a more detailed evaluation of carryover storage program supply utilization. The supplies taken from carryover storage will be considered a Water Authority regional supply to be combined with Water Authority's core supplies and any potential dry-year transfers.

Another factor that will be considered when utilizing carryover supplies is the March 2010 Water Authority Board approval of a revised SAWR program. Customers in the SAWR class of service are exempt from paying the Water Authority's storage charge and in turn receive no water from the Carryover Storage Program during Stage 2 or 3 of the WSDRP. Water Authority staff will work with the agricultural member agencies on developing proposed procedures for administering this program prior to completion of the San Vicente Dam raise.

### **11.2.3.2 Water Authority's Dry-Year Transfer Program**

To ensure adequate water supplies resulting from continuing drought conditions (2007 – 2011) and regulatory constraints, and as part of the Water Authority's WSDRP, staff developed a plan to secure one-time water transfer agreements, which could lay the foundation for long-term agreements as authorized by the Board on September 27, 2007. Although transfers of water supplies through the Delta may be subject to curtailments during certain periods due to operations of the pumps in the SWP system, staff pursued opportunities as a supply option in the event that Colorado River surplus was suspended or dry-year conditions continue. The supply could also hedge against shortfalls resulting from a reduced State Water Project allocation.

In 2009, the Water Authority acquired 20,000 acre-feet of water under a one-year transfer agreement with Placer County Water Agency in Northern California to lessen the impact of water supply reductions on the San Diego region. The transfer eased the region's transition from voluntary conservation to mandatory water use restrictions by keeping regional water savings target for the year at a manageable level. In 2010, the Water Authority actively sought water transfer options, however, due to the changed conditions of the Water Authority's water demands, which had significantly dropped since Metropolitan enacted Level 2 of its Water Supply Allocation Plan in July 2009, the expense necessary to obtain the necessary approvals and agreements and the comparatively higher cost of the supplies, the board approved not exercising its call rights to the 2010 dry-year transfer with the South Feather Water and Power Agency. The board also decided to end its pilot program efforts between San Juan Water District, Santa Clara Valley Water District, and the Water Authority for Calendar Year 2010 and continue it over to 2011.

Considerations that shaped negotiations between the Water Authority and the potential partners included:

- **Source Location:** To mitigate the delivery risks through the Delta, staff pursued transfers as a part of DWR's Dry Year Program, which had a wheeling priority in the Delta. In addition, staff investigated temporary storage agreements with DWR and the USBR in Lake Oroville or Lake Shasta to store the conserved water for when releases would be permitted.
- **Federal and State Agency Approvals:** Potential programs may have required environmental compliance and approval from overseeing agencies, such as the USBR and DWR.
- **Price:** The cost for water purchase, transportation, conveyance losses, and environmental/administrative fees should be comparable to the costs of other supply alternatives such as Metropolitan's Tier 2 purchases and IID transfers. In addition, staff made efforts to not drive the costs up of potential proposals by Metropolitan with the Northern California water districts.
- **Call Period:** Potential partners were seeking earlier call dates to ensure time to conserve the call amount. The Water Authority sought a balance that would provide a later call date opportunity due to changing weather conditions or water opportunities.
- **Available Capacity in the SWP system:** Consideration was made due to the uncertainty of the SWP pump operations and available capacity in the SWP system.

### 11.2.4 Model Drought Response Conservation Ordinance

In March 2008, the Water Authority's Board of Directors approved for release a Model Drought Response Conservation Program Ordinance (Model Drought Ordinance) for use by member agencies in updating their existing ordinances. The Model Drought Ordinance was developed with input from the member agencies to provide regional consistency during periods of shortages. The Department of Water Resource's 2008 Updated Urban Drought Guidebook was also utilized as a reference document for preparation of the Model Drought Ordinance. It identifies four drought response levels that contain water-use restrictions to help achieve demand reduction during temporary shortages. The restrictions become more stringent at each successive level to obtain necessary savings and delay economic impact until higher levels. The Model Drought Ordinance is included in Appendix H. Table 11.3 shows the correlation between the WSDRP stages and the Model Drought Ordinance.

**Table 11-3. Correlation between WSDRP Stages and Model Ordinance Levels**

<b>WSDRP Stage</b>	<b>Drought Response Level</b>	<b>Use Restrictions</b>	<b>Conservation Target</b>
1	1 – Drought Watch	Voluntary	Up to 10%
2	1 – Drought Watch	Voluntary	Up to 10%
	2 – Drought Alert	Mandatory	Up to 20%
3	2 – Drought Alert	Mandatory	Up to 20%
	3 – Drought Critical	Mandatory	Up to 40%
	4 – Drought Emergency	Mandatory	Above 40%+

The Water Authority’s member agencies, not the Water Authority, have the direct customer service relationship with water users, and responsibility to address mandatory use prohibitions or restrictions during water shortages. The Model Drought Ordinance served as a model to the member agencies in updating their individual ordinances to help promote regional consistency. Member agencies independently adopt retail-level actions to manage potential shortages. Since its approval, all of the member agencies have updated their existing ordinances, based on the Model Drought Ordinance, but also tailoring their individual ordinances to their unique service area and characteristics. Similar to the Water Authority’s Model Drought Ordinance, the member agencies’ ordinances provide specific mandatory restrictions on water use during a water shortage or drought event depending on its severity.

The Water Authority is working with its member agencies to update the Water Authority’s Model Drought Ordinance, based on lessons learned during the during the 2007-2011 shortage period. This will include updating the language to comply with the specific requirements of the Act regarding consumption reduction methods to address “up to a 50 percent reduction in water supply” (Water Code Section 10632 (a)).

## 11.2.5 Penalties for Excessive Water Use

Penalty rates may be used by the Water Authority to encourage conservation and reduce demand during a drought or other water supply shortage. If Metropolitan allocates imported water supplies to the Water Authority, Metropolitan can impose surcharges (penalty pricing) on water consumption in excess of the Water Authority’s allocation. The Water Authority’s Implementing Resolution, provides for a pass through to the Water Authority’s member agencies of any penalties levied by Metropolitan on the Water Authority for exceeding its annual allocation. Penalties are assessed at the end of the fiscal or calendar year, depending on the class of service. Penalties will be assessed on a pro rata basis to the member agencies that exceed their allocations, and only if the Water Authority exceeds its allocation from Metropolitan. The Water Authority is subject to significant financial penalties if it exceeds its Metropolitan allocation.

Rates may also be adjusted based on any other allocation program implemented by the Water Authority as determined necessary by the Board of Directors. The Water Authority may also reduce the amount of water it allocates to a member agency if the member agency fails to adopt or implement water use restrictions.

## 11.2.6 Revenue Impacts

The Water Authority has taken significant steps to reduce potential revenue impacts resulting from fluctuating water sales. In fiscal year 1990, the Water Authority created a Rate Stabilization Fund (RSF) to provide funds that would mitigate the need for rate increases in the event of an unexpected decline in water sales. In 2006, the Board adopted new policies governing the RSF. Under the newly adopted policy, the RSF has a “target” balance that is the equivalent of the estimated financial impact 2.5 years of wet weather (reduced sales). The new policy also established a maximum RSF balance that is equal to the financial impact of 3.5 years of wet weather. The new policy matches the level of RSF funding with the risk (water sales volatility) that the fund is designed to mitigate. The RSF provides an important tool to mitigate water sales volatility and the impact that has on water rates.

Additionally, on January 1, 2003, the Water Authority implemented a new rate structure that substantially increased the percentage of water revenues generated from fixed charges. This increase replaced the previous variable “postage stamp” rate, which historically generated as much as 80 percent or more of total annual revenues, with two fixed charges, and one variable rate. These new fixed charges – Customer Service, Infrastructure Access Charge, and Storage – are key components to the Water Authority’s future revenue stability.

Although the Water Authority maintains financial reserves, it is possible that additional costs associated with demand reduction and supply enhancement could negatively affect the Water Authority’s short-term financial situation. The Water Authority may compensate for increased costs or reduced water sales by adjusting water rates in succeeding years.

## 11.2.7 Minimum Water Supply Available Over Next Three Years

In accordance with the Act, agencies are required to estimate the minimum water supply available during each of the next three years, based on the driest three-year historic sequence, compared with a normal water year. To determine the minimum supplies potentially available to the region, the same assumptions contained in the multi dry-year analysis in Section 9.3 were used. Table 11.4 contains the minimum estimated supplies. The minimum supplies are included in accordance with the Act. It should be noted that based on current supply and storage conditions statewide, the Water Authority is not currently forecasting this supply scenario.

**Table 11-4. Estimated Minimum Supplies without Utilization of Carryover Storage**

Supplies	Average Water Year 2013	Single Dry Water Year 2013	Multiple Dry-Year Water Supply		
			2012	2013	2014
Member Agency Local Supplies	95,805	72,028	69,597	84,440	103,907
Water Authority QSA	180,200	180,200	170,200	180,200	180,200
Metropolitan Supplies (Allocation at Preferential Rights)	319,177	319,177	317,760	319,177	320,456
Total	595,183	571,405	557,557	583,817	604,563

## 11.3 Summary

The shortage contingency analysis included in this section demonstrates that the Water Authority and its member agencies, through the ICP and ESP, are taking actions to prepare for and appropriately handle a catastrophic interruption of water supplies. The analysis also describes the Water Authority's plans, procedures, and WSDRP for the San Diego region, and coordinated development of the Drought Model Ordinance. The WSDRP identifies the actions to be taken by the Water Authority to minimize the impacts of a supply shortage due to a drought or other water supply shortage, including a methodology for allocating M&I supplies to the member agencies during a water shortage. These components address the requirements of the Act that are applicable to the Water Authority.